

The Relationship between Multiple Sexual Partners and Mental Health in Adolescent Females

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Abstract

Objectives: To examine the association between mental health and multiple sexual partners in adolescent females.

Methods: This study uses nationally representative data from the Youth Risk Behavior Survey (n=7361 high school females).

Results: The prevalence of sadness, suicide ideation, suicide plans and suicide attempts increased with the number of sexual partners across all racial/ethnic groups. However, the relationship was less dramatic for black adolescent females.

Conclusion: Girls presenting with depressive symptoms may be at increased risk for HIV and other STDs. Also, girls with multiple partners may be at increased risk for depression.

Keywords: Adolescent depression; High school females; Multiple sexual partners; Mental health

Introduction

Depression is a serious health issue that is estimated to affect as many as 28% of adolescents by the time they reach 19 [1]. Almost one out of three high school students in the United States report feeling sad or hopeless almost every day for at least two consecutive weeks, to the extent that they stopped doing their usual activities [2]. Females tend to suffer from depression at a rate two to three times higher than their male counterparts, and these gender differences are known to begin during adolescence [3].

Adolescent depression has been linked to violence [4], smoking [5,6] substance use [7], eating behaviors [8] and increased suicide risk [9,10]. It also has been linked to sexual activities [6]. Previous studies, using data from the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative survey of 7th through 12th grade students, have explored associations between adolescent depression and romantic/sexual behaviors [11,12]. Joyner and Udry found romantically involved adolescents, especially females, were more likely to be depressed than those who were not [11]. Hallfors et al. also found that adolescents who engaged in any sexual activities were at increased odds for reporting depression, suicidal thoughts and suicide attempts [12]. Again, the odds were higher for females than males [12]. In addition to the more general association between sexual activity and depression, past research has also explored the relationship between specific sexual practices and depression and suicide ideation. Studies have found correlations between depression and unsafe sexual activity (i.e. condom use), history of sexual abuse, sexually transmitted diseases, pregnancy, and age at first intercourse [13-17].

Little research has explicitly examined the role of sexual partners and mental health. While international studies have found a link between the number of sexual partners and adolescent depression [18], with few exceptions [19], studies in the United States have not specifically focused on associations between the number of sexual partners and mental health markers. Thus, this study adds to the existing body of literature by exploring the relationship between unexplored measures of sexual behaviors (i.e. the number of sexual partners) and mental health indicators in adolescent females using a nationally representative sample of United States adolescents.

Methods

This study uses data from the 2003 Youth Risk Behavior Survey (YRBS), a school-based survey conducted by the Centers for Disease Control and Prevention (CDC) since 1990. Conducted biennially, the YRBS monitors the prevalence of risk behaviors that influence health among adolescents in the United States. The YRBS employs a three-stage cluster sample design to obtain a representative sample of high school students in grades 9 through 12. The YRBS methodology is described in its entirety elsewhere [2]. Details relevant to this research are described.

The overall response rate for the 2003 YRBS was 67% yielding 15,214 usable questionnaires from one hundred and fifty-eight schools across the nation. Approximately half of the students (48.6%) were female resulting in a sub-sample of 7361 students for this analysis. The survey instrument consisted of 97 multiple-choice items regarding health issues such as weight and nutrition, substance use, sexual behaviors, and violence, among other things. For the purposes of this study, five items were used to explore the relationship between the number of sexual partners and depressive symptoms. The measure used for sexual partners was number of people with whom they've had sexual intercourse in their lifetime. The measures used to represent depressive symptoms were: 1) feeling sad for two or more consecutive weeks such that they stopped doing some usual activities; 2) seriously considering attempting suicide (suicide ideation); 3) making a suicide plan; and 4) suicide attempt, all referring to the last 12 months. It is important to note that these measures alone are not sufficient to identify depression, but they measures were chosen and used as proxies in this study as these mental health indicators closely mirror several items

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in the criteria for diagnosing major depressive disorder according to the DSM-IV TR [20]. These items have also been cited as measures of depressive symptoms in previous research studying depression and/or suicide [21-23].

The dataset was weighted to address non-response and the varying probabilities of selection, including those resulting from the over sampling of black and Hispanic students. Statistical analyses were performed using SUDAAN, which corrects for the complex sample design. Prevalence estimates, with 95% confidence intervals were used to examine the relationship between mental health indicators and sexual behavior for each racial/ethnic group. Logistic regression was utilized to generate an adjusted odds ratio for each indicator of mental health also with 95% confidence intervals. Regression models were also generated separately by race/ethnicity to test for the presence of interaction effects.

Results

Table 1 summarizes the number of lifetime sexual partners, and rates of sadness, suicide ideation, suicide plans and suicide attempts among adolescent females according to race/ethnicity. Overall, 45.3% of adolescent girls reported being sexually active, citing at least one partner in their lifetime. Black girls were significantly more likely to report having had at least one sexual partner in their lifetime compared to non-blacks. More so, black females were more likely to report having two or more lifetime sexual partners than their non-black counterparts.

Regardless of sexual activity, more than a third of all females reported feeling sad for at least two consecutive weeks in the past year, so that they stopped doing their usual activities. Hispanic females were significantly more likely to report feeling sad than black and white females. Approximately one fifth of all females seriously considered attempting suicide. Black females were significantly less likely to report suicide ideation than non-blacks. Approximately one fifth of adolescent girls reported making a suicide plan and 11.4% reported attempting suicide within the past 12 months. Hispanic females were significantly more likely to report making a suicide plan than black females, and Hispanics were significantly more likely to report suicide attempts than non-Hispanics.

Table 2 presents the relationships between the number of lifetime sexual partners among teenage girls, and rates of sadness, suicide ideation, plans and attempts according to race/ethnicity. Overall females with no sexual partners were significantly less likely to report measures of poor mental health than those who have had one, two, or three or more sexual partners. Similarly, girls who reported three or more partners were significantly more likely to report sadness, suicide ideation and suicide plans and attempts than those with fewer partners.

The trend exists across all racial and ethnic categories although it is less drastic among black females. For example, the prevalence of feeling depressed among black girls with three or more partners is similar to the prevalence of sadness white females with one partner, and Hispanic girls with no partners.

Table 3 shows the adjusted odd ratios for feeling sad, suicide ideation, suicide plan and suicide attempt by the number of lifetime sexual partners, controlling for school grade, and race/ethnicity. For all four mental health indicators, black females had lower odds compared to white females. Hispanic females had 1.6 times greater odds for feeling sad compared to white females. Overall, the odds for all four mental health indicators decreased with school grade. Lastly, the adjusted odds for each of the four mental health indicators increased as the number of sexual partners in a lifetime increased, relative to virgins. The greatest odds in each of the four models were for those with 3 or more lifetime partners.

The strength of the associations between lifetime sexual partner and the four mental health indicators were found to vary based on race/ethnicity. Therefore adjusted odds ratios were generated to test for the presence of interaction effects based on race/ethnicity. The regression models were generated separately by race/ethnicity and the results, which were significant, are presented in Table 4. Whereas in the overall model (Table 3), having one lifetime sexual partner resulted in significantly greater odds for all four mental health indicators, this relationship was not significant for black females.

Discussion

Consistent with previous findings, blacks were more likely to have multiple sex partners than non-blacks [24-26]. They were also less likely to report depressive symptoms. Previous studies have mixed findings. Angold [27] found that black youth were less likely to suffer from depressive disorder than whites. Saluja [28] reported similar prevalence for black and white youth while other studies [29,30] found that blacks were more likely to suffer from depressed mood compared to whites. Hispanics on the other hand, consistent with other studies, had the highest frequency of reporting depressive symptoms [28,31].

The main finding of this study is that a relationship exists between mental health and number of sexual partners. As the number of lifetime sexual partners increases, the prevalence of sadness, suicide ideation, making a suicide plan, and attempting suicide also increases. This relationship between mental health and number of sexual partners occurs across all ethnic and racial categories, though the trend is less dramatic in black girls.

Given the relationship between sexual partners and mental health,

	Total		White		Black		Hispanic		Other	
	(%)	CI	(%)	CI	(%)	CI	(%)	CI	(%)	CI
Life Sex Partners										
None	54.7	2.6	57.1	3.2	39.5	4.1	53.6	3.6	65.0	7.7
1 person	18.8	1.4	18.9	2.0	18.2	2.6	22.2	2.2	11.7	4.4
2 people	9.0	1.1	8.5	1.2	14.8	2.3	7.9	1.5	6.4	2.7
3+ people	17.4	1.8	15.6	1.9	27.5	4.5	16.4	2.6	17.0	6.1
Sadness	35.5	2.5	33.3	3.8	30.8	3.1	44.9	4.0	39.9	5.9
Suicide Ideation	21.2	1.1	21.2	1.8	14.7	2.5	23.4	2.6	28.1	6.6
Suicide Plan	18.9	3.6	18.6	4.9	12.4	2.6	20.7	3.7	28.2	7.1
Suicide Attempt	11.4	1.4	10.3	1.8	9.0	1.8	15.0	2.3	17.6	7.4

Table 1: Prevalence of lifetime sexual partners, sadness, suicide ideation, making a suicide plan, and suicide attempts within the past 12 months among U.S. high school females, 2003 YRBS.

	Sadness		Suicide Ideation		Suicide Plan		Suicide Attempt	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
White								
None	24.8	3.4	14.7	2	10.6	1.3	6.5	1.7
1 person	39.2	5.9	28.4	5.7	18	4.6	14.1	6
2 people	42.5	9.8	26.5	5.6	17.1	5.7	10.3	4.6
3+ people	51.1	6.3	37.1	5.7	26.4	3.6	20.9	4.1
Black								
None	22	5.2	8.9	3.5	6.1	2.9	3.7	2.6
1 person	25.6	5.7	9.5	3.4	8.3	2.7	5	2.7
2 people	41.7	10.2	19.2	7.9	16.6	7.8	14.7	8.8
3+ people	39.1	5.9	23.2	5.6	19.1	5.4	15.4	3.9
Hispanic								
None	38.3	6.1	16.3	4.3	13.5	2.9	8.7	2.4
1 person	47	7.2	26.9	4.6	17	6.2	14.9	4.5
2 people	56.6	9.9	28.1	11.2	19.5	6.9	17.9	8.6
3+ people	60.5	8.5	38	7.5	31.6	7.8	31.1	8.9
Other								
None	32.5	7.1	24.1	8.6	23.6	9.7	11	7.3
1 person	42.9	19.5	28.4	15.6	5.5	5.9	12	10.3
2 people	36.1	18.7	17.7	15.3	20.3	21.5	17.6	16.6
3+ people	67	12.3	41.5	12.5	39.2	12.3	38.4	14
Total								
None	27.7	2.5	15.3	1.7	11.9	1.6	7.1	1.5
1 person	39.3	4.3	25.7	3.8	15.9	2.8	13.1	4.1
2 people	44.2	6.9	24.7	4.1	17.6	3.7	12.8	3.7
3+ people	51.4	3.7	34.7	3.7	26.8	3	22.9	3.4

Table 2: Adolescent Females Reporting Poor Mental Health Status According to the Number of Lifetime Sexual Partners, 2003 YRBS.

	Sadness		Suicide Ideation		Suicide Plan		Suicide Attempt	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
White	1.00	1.00-1.00	1	1.00-1.00	1	1.00-1.00	1	1.00-1.00
Black	1.64*	.55-.89	.47*	.36-.62	.59*	.44-.81	.59*	.40-.86
Hispanic	1.64*	1.25-2.15	1.02	.82-1.27	1.16	.91-1.48	1.34	.97-1.85
Other	1.39*	1.03-1.89	1.4	.95-1.07	1.82*	1.05-3.14	1.72*	1.01-2.94
9 th grade	1	1.00-1.00	1	1.00-1.00	1	1.00-1.00	1	1.00-1.00
10 th grade	.89	.71-1.11	.92	.72-1.17	.91	.72-1.15	.68*	.50-.93
11 th grade	.83	.67-1.03	.66*	.48-.90	.62*	.42-.92	.44*	.29-.66
12 th grade	.62*	.5-.7	.58*	.44-.75	.56*	.43-.73	.29*	.20-.42
Virgin	1	1.00-1.00	1	1.00-1.00	1	1.00-1.00	1	1.00-1.00
1partner	1.84*	1.84-2.23-	2.20*	1.67-2.90	1.62*	1.22-2.15	2.58*	1.61-4.14
2 partner	2.44*	1.89-3.13	2.25*	1.66-3.05	1.94*	1.46-2.58	2.72*	1.89-3.92
3+partner	3.23*	2.68-3.89	3.36*	2.85-4.70	3.30*	2.57-4.24	5.50*	3.83-7.92

*p<0.05

Table 3: Adjusted odds ratios for mental health indicators according to race, grade and number of sexual partners.

and their high level of sexual activity, one would expect black females to have the poorest mental health. While their prevalence of depressive symptoms does increase with the number of sexual partners, the relationship is not as pronounced as in is among other races. This may be because depression, suicide and other signs of poor mental health are considered taboo in the African-American community [32,33]. Subsequently many blacks may not concede to or acknowledge depression or suicide. The trend between sexual partners and mental health is most prominent in Hispanics. Hispanic culture may play a role as propriety and religion are often very important, and young Hispanic girls they may become upset if they feel they put themselves in a position to shame themselves or their families. However, Hispanic females are more likely to feel depressed overall, and the young girls might be seeking sex as a way to cope with their mental state.

Young girls with multiple sexual partners may later feel depressed because of their behaviors. The contrary could be true as well where young girls who are suffering from depressive symptoms self-medicate by engaging in sexual activities in an attempt to alleviate their mental anguish. The relationship may also be bidirectional. However, due to the cross-sectional study design, temporality cannot be determined.

There are additional limitations to consider. The YRBS was not designed to diagnose depression and has only five measures that refer to mental health, again, only four of which were used in this study. One question refers to feelings of sadness, and four refer to suicide. The YRBS does not inquire about psychotropic medications nor does it consider other mental health issues, such as bipolar disorder, schizophrenia, or borderline personality disorders, all of which have been associated with suicide ideation, suicide plans, and attempts the

	Sadness		Suicide Ideation		Suicide Plan		Suicide Attempt	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
White Virgin	1	1.00-1.00	1	1.00-1.00	1	1.00-1.00	1	1.00-1.00
White 1 partner	2.13*	1.68-2.7	2.62*	1.89-3.64	2.13*	1.48-3.05	3.08*	1.75-5.41
White 2 partner	2.48*	1.83-3.34	2.39*	1.70-3.36	2.00*	1.31-3.06	2.17*	1.29-3.67
White 3+ partner	3.51*	2.78-4.45	3.98*	2.87-5.52	3.54*	2.4-4.74	5.17*	3.50-7.66
Black Virgin	1	1.00-1.00	1	1.00-1.00	1	1.00-1.00	1	1.00-1.00
Black 1 partner	1.28	.78-2.11	1.15	.75-1.77	1.47	.84-2.57	1.49	.54-4.09
Black 2 partner	2.76*	1.46-5.22	2.71*	1.20-6.12	3.40*	1.57-7.40	5.54*	2.19-14.02
Black 3+ partner	2.55*	1.78-3.65	3.56*	2.27-5.60	4.16*	2.43-7.11	6.31*	3.02-13.17
Hispanic Virgin	1	1.00-1.00	1	1.00-1.00	1	1.00-1.00	1	1.00-1.00
Hispanic 1 partner	1.52	.96-2.39	2.07*	1.28-3.34	1.44	.79-2.61	2.32*	1.28-4.21
Hispanic 2 partner	2.32*	2.52-3.57	2.33*	1.16-4.69	1.82*	1.12-2.95	3.25*	1.69-6.25
Hispanic 3+ partner	2.67*	1.79-4.00	3.54*	2.25-5.56	3.34*	2.18-5.14	6.10*	3.40-10.95
Other Virgin	1	1.00-1.00	1	1.00-1.00	1	1.00-1.00	1	1.00-1.00
Other 1 partner	1.52	.96-2.39	1.27	.42-3.80	.19*	.05-.75	1.23	.31-4.92
Other 2 partner	1.23	.52-2.92	.71	.19-2.61	.87	.21-3.63	2.09	.55-7.95
Other 3+ partner	4.38*	1.95-9.85	2.35*	1.22-4.52	2.20*	1.08-4.47	6.38*	2.09-19.48

*p<0.05

Table 4: Adjusted odds ratios for mental health status according number of sexual partners within each ethnicity while controlling for grade and age.

latter of which disproportionately affects adolescent females [34]. It follows that while suicide ideation, suicide plans as well as attempts were used as measures of depressive symptoms, they are not necessarily indicative of depression or other mental health conditions. In addition, the YRBS does not attempt to survey absent youth who may be different than those who participate, nor does it reach truant youth who are more likely to engage in higher risk behaviors than those who are in school [35]. Lastly, due to local policies, several schools have omitted sensitive questions regarding substance use and sex history. The exclusion of these population categories may result in a bias.

Despite these limitations, this study adds to the existing literature because it suggests that there is a correlation between increased number of sexual partners and sadness among adolescent females. Practitioners with adolescent female clients should screen young girls engaging in sex with multiple partners for depression, as they may be at higher risk for depression and/or suicide. Conversely, health workers with female teenage patients should address sexual health as these young girls may be putting themselves at increased risk for HIV, STDs, pregnancy and other physical, mental and emotional consequences associated with increased sexual partners.

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